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IN THE APPLICATION

OF

JAMES R. HELLUMS

FOR A

SPARE WHEEL ASSEMBLY

## SPARE WHEEL ASSEMBLY

### **FIELD OF THE INVENTION**

The present invention relates generally to land vehicles and, more specifically, to  
5 temporarily attached wheel assemblies for trailers of the boat-carrying type.

### **BACKGROUND OF THE INVENTION**

Most trailers are equipped with a spare tire to help get the trailer back on the road in the  
event of a flat. Unfortunately, such are of little use when a wheel bearing burns out -- an all too  
10 common occurrence with trailers employed in hauling pleasure boats from place to place. A  
burned-out bearing, of course, prevents a wheel, regardless of the condition of its tire, from  
turning easily.

Trailer wheels are subject to far more abuse than those of typical automobiles. For  
example, trailer wheels are regularly idled for long periods of time allowing bearing lubricants to  
15 deteriorate. Subsequently, they are towed at high speeds, over rough roads, and with heavy  
loads. Then, in the case of boat trailers, they are submerged in water resulting in: the corrosion  
of bearing surfaces, the washing away of lubricants, and the introduction of abrasives into wheel  
bearings. Subsequent towing of the trailer often causes bearing failure wherein a trailer and its  
more valuable cargo are left unattended on the side of the road while the user seeks help in the  
20 form of a welder to replace the failed bearing.

Some have proposed emergency wheel assemblies for temporarily replacing the wheel of  
a trailer that cannot be turned due to the failure of its bearing or other mishap. These assemblies

may be successful in getting a trailer down the road, but since they are connected directly to the frame of a trailer, they present a boat or other thing carried by the trailer with a jarring ride. Under extreme conditions, a boat hull or other thing being carried by the trailer can be severely damaged during a rough ride. A need, therefore, exists for a spare wheel assembly that can be connected to the suspension of the trailer for presenting a smoother ride to a trailer's cargo.

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### SUMMARY OF THE INVENTION

In light of the problems associated with the known wheel assemblies for use with trailers having flat tires or bearing failures that prevent trailer movement, it is a principal object of the invention to provide a spare wheel assembly that offers a smooth ride to the burden of a trailer. Thus, the likelihood of damage to the costly hull of a boat or other object carried by a trailer is minimized.

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It is another object of the invention to provide a spare wheel assembly of the type described that can be quickly and easily attached to the leaf springs forming part of the suspension of a trailer. The spare wheel assembly can be attached to either side of a trailer, and neither special tools nor prolonged training is required to attach and use the spare wheel assembly. In short, the spare wheel assembly is intuitive to use.

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It is a further object of the invention to provide a spare wheel assembly that is compact in size and is easily transported within, or upon, a trailer or its towing vehicle. A trailer suffering a wheel problem need never be left unattended, and subject to vandalism and theft, while attempting a roadside repair.

It is an additional object of the invention to provide a spare wheel assembly of the type described that can be used with trailers produced by different manufacturers and having different load-bearing capacities.

5 It is an object of the invention to provide improved elements and arrangements thereof in a spare wheel assembly for the purposes described which is lightweight, rugged, inexpensive to make, and fully dependable in use.

Briefly, the spare wheel assembly in accordance with this invention achieves the intended objects by featuring a wheel hub that is secured to a frame. A pair of mounting brackets is pivotally secured to the frame and adapted for attachment to the leaf springs of a trailer. Each 10 of the mounting brackets has a base portion with a pair of upright legs joined at their tops by a crosspiece and a locking portion positioned in registry with the crosspiece. A pair of threaded fasteners passes through the crosspiece and the locking portion for releasably and adjustably fastening the base portion and the locking portion together. A wheel is secured to the wheel hub.

The forgoing and other objects, features, and advantages of the present invention will 15 become readily apparent upon further review of the following detailed description of the preferred embodiment as illustrated in the accompanying drawings.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

The present invention may be more readily described with reference to the accompanying 20 drawings, in which:

FIG. 1 is an exploded perspective view of a spare wheel assembly in accordance with the present invention.

FIG. 2 is a perspective view of the spare wheel assembly of FIG. 1.

FIG. 3 is a front view of the spare wheel assembly shown mounted on a trailer with portions broken away.

FIG. 4 is a side view of the spare wheel assembly mounted on a trailer with portions  
5 broken away.

Similar reference characters denote corresponding features consistently throughout the accompanying drawings.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

10 Referring now to the FIGS., a spare wheel assembly in accordance with the present invention is shown at 10. Assembly 10 includes a frame 12 having mounting brackets 14 pivotally secured to its opposite ends for attachment to the leaf springs 16 forming part of the suspension system of a trailer. A wheel hub 18 is also secured to one end of frame 12 and a wheel 20 is mounted on hub 18 for supporting frame 12 and one side of a trailer above the  
15 ground.

Frame 12 includes a longitudinal member 22 from one end of which a transverse member 24 extends at right angles. Together, longitudinal member 22 and transverse member 24 form an L-shaped unit. A fitting 26 is carried at the distal end of transverse member 24 for retaining hub 18 at a fixed distance from longitudinal member 22 so that wheel 20 is free to turn.

20 Spaced-apart apertures 28 and 30 in longitudinal member 22 receive threaded fasteners 32 and 34 that pivotally secure brackets 14 to frame 12. Aperture 28 is provided at the end of longitudinal member 22 opposite transverse member 24 and aperture 30 is located between

aperture 22 and transverse member 24. This configuration offers a gap 36 between brackets 14 that accommodates trailer axle 38 on leaf springs 16 and serves to establish a fulcrum around fastener 34 that dampens road shocks during use.

Each bracket 14 includes a base portion 40 and a locking portion 42 that are joined together by a pair of threaded fasteners 44. Base portion 40 has a pair of upright legs 46, with apertures 48 in their bottoms for receiving threaded fasteners 44, that are joined at their tops by a crosspiece 50 to form a part resembling an inverted "U". Preferably, crosspiece 50 overlaps both legs 46 so as to project from their outer faces and define retaining flanges 52 on opposite sides of base portion 40 that are each provided with an aperture 54 for receiving a threaded fastener 44. Locking portion 42, however, is a flat plate having apertures 56 located at its opposite ends in registry with apertures 54 and for receiving threaded fasteners 44.

Each mounting bracket 14 is provided with a feature that ensures the proper alignment of assembly 10 on a trailer. To this end, crosspiece 50 is provided with an upstanding tab 58 at one of its ends and between apertures 54. As is best illustrated with reference to FIG. 3, tab 58 is placed in abutment with a side of leaf springs 16 to maintain wheel 20 in a rotational plane that is parallel to the longitudinal axis of leaf springs 16. Of course, the longitudinal axis of leaf springs 16 is usually parallel to the longitudinal axis of the supported trailer.

Wheel hub 18 has a bearing 60 adapted for secure mounting on fitting 26 and a wheel mounting plate 62 to one side of bearing 60 for rotational movement. Apertures 64 in plate 62 carry bolts 66 to which nuts 68 can be threadably fastened to join wheel 20 to hub 18.

Wheel 20 is conventional in its construction and has a resilient tire 70 a fixed around a stiff rim 72. The free ends of bolts 66 pass through holes (not shown) in rim 72 to receive nuts

68. The outer diameter of tire 70 is substantially the same as the outer diameter of the tire originally carried by axle 38.

Use of spare wheel assembly 10 is straightforward. First, the trailer is jacked up and the wheel originally carried by axle 38 is removed because its supporting bearing has burned out or  
5 because its tire is flat. Next, frame 12 is positioned beneath leaf springs 16 and base portions 40 of brackets 14 are pivoted so that each crosspiece 50 is in engagement with leaf springs 16. With tabs 58 positioned against leaf springs 16, threaded fasteners 44 are extended through flanges 52 and locking portions 42 that have been positioned atop leaf springs 16. Securely  
10 tightening threaded fasteners 44 locks assembly 10 upon the suspension of a trailer. When the trailer is jacked back down, it may be used in a normal fashion with the ride experienced by the cargo carried by the trailer being smooth and undiminished. The entire installation process for spare wheel assembly 10 requires but a few minutes to complete and does not require a user to leave the trailer unattended for even a second.

While the invention has been described with a high degree of particularity, it will be  
15 appreciated by those skilled in the art that modifications may be made thereto. Therefore, it is to be understood that the present invention is not limited to the sole embodiment described above, but encompasses any and all embodiments within the scope of the following claims.